

App. No. 09/870,690
Supp. Resp. dated Feb. 23, 2005
Resp. to Office Action of May 20, 2004

Amendments To The Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Please amend the claims as follows:

1. (Previously Presented) An image cut-away/display system comprising:
a plurality of image taking means for taking images in continuous view areas;
image combining means for combining the images taken by the image taking means to form a single wide-area view image;
view-point data generating means for generating view-point data for each of users based on motion of eyeballs of each user;
image cut-away means for cutting away images for each user from the single wide-area view image based on the view-point data for each user; and
image displaying means for displaying the cut-away images for each user at a view point of each user.
2. (Original) The image cut-away/display system according to claim 1, wherein the image taking means include a plurality of cameras arranged around a reference center.

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3. (Previously Presented) The image cut-away/display system according to claim 1, wherein the image displaying means includes a head-mounted display by which the images from the image cut-away means and actual views are overlapped with each other.

4. (Original) The image cut-away/display system according to claim 1, wherein the view-point generating means includes a head-motion tracker for tracking motion of a head of each user or an eyeball positional detector for tracking eye movement of each user.

5. (Previously Presented) An image cut-away and display system comprising:
a plurality of cameras, namely, a front camera, a left camera and a right camera mounted on a vehicle, optical axes of the cameras crossing each other on a given point in the vehicle, for taking continuous pictures of a wide range of surroundings without a rift;
a display apparatus for mounting on a head of a crew member in said vehicle for display one of said continuous pictures;
image combining means electronically and optically connected to said plurality of cameras for making a continuous image of said surroundings by combining said pictures;
view-point information generating means included in said display apparatus for generating a view-point information for said crew member;
image cut-away means electronically and optically interposed between said image combining means and said display apparatus for editing said continuous image so as to make an optimum use thereof for said crew member through said view-point information; and
head-mounted display means included in said display apparatus for displaying a cut-away image exclusively required for said crew member so as to clearly display said cut-away image with a high quality.

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6. (Previously Presented) The image cut-away and display system according to claim 5, wherein:

said view-point information generating means has a head motion tracker for tracking a motion of said head.

7. (Previously Presented) The image cut-away and display system according to claim 5, wherein:

said view-point information generating means has a detector of eyeball movement of said crew member.

8. (Previously Presented) An image cut-away and display method, comprising the steps of:

taking continuous pictures of a wide range of surroundings without a rift with a plurality of cameras; namely, a front camera, a left camera and a right camera mounted on a vehicle, optical axes of the cameras crossing each other on a given point in the vehicle;

rectifying a deformation of each picture by a correcting apparatus;

preparing image combining means electronically and optically connected to said plurality of cameras;

making a series of continuous images of said surroundings by combining said pictures;

identifying said images required for displaying;

extracting a common image related to each picture or a common color tone thereof from said picture;

correcting a magnifying ratio of said image;

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generating a view-point information for a crew member by view-point
information generating means included in said display apparatus;
adjusting a position of said image;
forming a connected image by connecting an overlapped portion of said image;
and

processing said image by a gradation method so as to smoothly and continuously
connect said image without an outstanding overlapped portion thereof.

9. (Previously Presented) The image cut-away and display method according to
claim 8, wherein said view-point-information generating step includes the step of tracking
motion of a head of said crew member.

10. (Currently Amended) An image taking-out and displaying system for taking
images of objects in continuous ~~view areas~~ wide range around a vehicle by a plurality of cameras
provided in ~~a head up display for a human head~~ said vehicle for assisting human eyes of an
operator of ~~[[a]]~~ said vehicle and for displaying said images in front of eyes of said operator,
comprising:

image correction means electro-optically connected to said cameras for correcting
irregularities of said images;

image combining means electro-optically connected to said image correction
means for combining said images to a single wide area view image;

memory means electro-optically connected to said image combining means for
storing data of said image;

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viewpoint-information data outputting means for generating viewpoint-information data of said operator on the basis of motion of the eyes of said operator,

image editing means electro-optically connected to said memory means and said viewpoint-information data outputting means for taking out necessary images for each operator from said single wide area view image based on said viewpoint-information data and for displaying said images for each operator as required so as to promptly and exactly present said images with a high quality at an adequately required position.

11. (Currently Amended) An image cut-away/display system for taking images of objects in continuous ~~view-areas~~ wide view range around a vehicle, comprising:

a plurality of cameras provided in said vehicle arranged around a predetermined reference center point for taking images in a continuous wide view areas area;

image combining means for combining the said images taken by the ~~image-taking means to form~~ said cameras and for forming a single wide-area view image;

view-point data generating means for generating view-point data for each user of said system based on eyeball motion of each user;

image cut-away means for cutting away ~~images~~ an objective image for each user from the single ~~wide-area~~ view image based on the view-point data for each user; and

image displaying means for displaying ~~the cut-away images~~ said objective image for each user at a view point of each user.

12. (Previously Presented) The image cut-away/display system according to claim 11, wherein the image displaying means includes a head-mounted display by which the images from the image cut-away means and actual views are overlapped with each other.

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13. (Previously Presented) The image cut-away/display system according to claim 11, wherein the view-point generating means includes a head-motion tracker for tracking motion of a head of each user or an eyeball positional detector for tracking eye movement of each user.

14. (Previously Presented) An image cut-away and display system comprising:
a plurality of cameras, namely, a front camera, a left camera and a right camera mounted on a vehicle, optical axes of the cameras crossing each other on a given point in the vehicle, for taking continuous pictures of a wide range of surroundings of the vehicle without a rift;

a display apparatus for mounting on crew member head in said vehicle for display one of said continuous pictures;

image combining means electronically and optically connected to said plurality of cameras for making a continuous image of said surroundings by combining said pictures;

view-point information generating means included in said display apparatus for generating view-point information for said crew member;

image cut-away means electronically and optically interposed between said image combining means and said display apparatus for editing said continuous image so as to make an optimum use thereof for said crew member through said view-point information; and

head-mounted display means included in said display apparatus for displaying a cut-away image exclusively required for said crew member so as to clearly display said cut-away image with a high quality.